

REMARKS

At the time of the Office Action dated April 13, 2004, claims 1-2, 4, 11-12, 24-25, 27, 34-35, 39-40, 42, and 46-53 were pending and rejected in this application. Applicants acknowledge, with appreciation, the Examiner's indication that claims 51-53 contain allowable subject matter.

Claims 1, 4, 11, 24, 27, 34-35, 40, 42, and 50-53 are amended, claims 39 and 46-49 are cancelled, and claims 54-57 are added. New claims 54-57 are method claims that respectively correspond to the tenth through thirteenth embodiments of the invention. Applicants submit that the present Amendment does not generate any new matter issue.

Initially, Applicants note that JP 10-83955, initially cited in the Office Action dated March 27, 2003, has not been listed on a PTO-892 form. Applicants, therefore, respectfully solicit the Examiner to clarify the record by issuing an amended PTO-892 form that lists JP 10-83955.

On page two of the Office Action, the Examiner objected to a perceived informality in the specification. In response, Applicants have amended the specification, as suggested by the Examiner. Applicants, therefore, solicit withdrawal of the objection to the specification.

On pages two and three of the Office Action, the Examiner objected to claims 1, 4, 11, 24, 27, 34-35, 40, 42, 46-47, and 50-53. Applicants note that the claims have been amended substantially consistent with the Examiner's suggestions.

Applicants, however, have not amended independent claims 1, 24, 40, and 42 to swap "first angle" with "second angle," as suggested by the Examiner. In this regard, Applicants submit that the Examiner may have misinterpreted the language previously presented in claims 1, 24, 40, and 42. The X-ray's "first" output angle corresponds to a direction in which the X-ray is collected, and the X-ray's "second" output angle corresponds to a direction in which the X-ray's illuminable region is increased. For an X-ray output from an X-ray source (e.g., a synchrotron radiation source), there are a horizontal (or first) direction associated with a large output angle and a vertical (or second) angle associated with a small output angle. If the claims were amended, as suggested by the Examiner, the second direction's output angle would be larger than the first direction's output angle, and such an amendment would not conform to the embodiment disclosed in the specification. To clarify this feature, claims 1, 24, 40, and 42 have been amended to recite that the X-ray received by the X-ray mirrors is output "from an X-ray source" having a first angle. Based upon these arguments, Applicants respectfully solicit withdrawal of the imposed objection to claims 1, 4, 11, 24, 27, 34-35, 40, 42, and 50-53.

CLAIMS 39 AND 50-53 ARE REJECTED UNDER THE SECOND PARAGRAPH OF 35 U.S.C. §

112

Since claim 39 has been cancelled, the rejection of claim 39 is moot. As to claims 50-52, the Examiner alleged that essential structural cooperative relationships between certain elements

are incomplete. In response, Applicants note that claims 50-52 have been amended to clarify that the distance L (or $L\alpha$) has a same direction of an optical axis of an X-ray incident on a first stage X-ray mirror, and distance D has a direction of an axis orthogonal to the optical axis of the X-ray incident on the first stage X-ray mirror and orthogonal to a plane defined by the optical axis of the X-ray incident on the first stage mirror and a reflection of the X-ray from the first stage mirror.

With regard to claims 50-53, the Examiner alleged another omission of essential structural cooperative relationships between certain elements. In response, Applicants note that claims 50-53 have been amended to recite that the direction of an optical axis of an X-ray incident on a first stage X-ray mirror is substantially identical to a direction of the optical axis of the X-ray output from either the second, third, or fourth stage X-ray mirrors (depending upon the claim.) Applicants, therefore, respectfully submit that the Examiner's rejection of claims 50-53 has been traversed.

CLAIM 39 IS REJECTED UNDER 35 U.S.C. § 102 FOR ANTICIPATION BASED UPON

WATANABE, JP 10-083955

Claim 39 has been cancelled. Thus, the rejection of claim 39 is moot.

CLAIM 50 IS REJECTED UNDER 35 U.S.C. § 102 FOR ANTICIPATION BASED UPON KOIKE,

U.S. PATENT No. 5,528,364

On page six of the Office Action, the Examiner referred specifically to Fig. 3 to teach that the "respective optical axes have substantially identical directions." This rejection is respectfully traversed.

Initially, Applicants note that claim 50 has been amended to clarify that the direction of the optical axis of the X-ray incident on the first stage X-ray mirror is substantially identical to a direction of the optical axis of the X-ray output from the second stage X-ray mirror. In this regard, the Examiner is directed to Fig. 8 of Applicants' disclosure, which shows (on the left) an X-ray 10 approaching a first stage X-ray mirror 11 and leaving (on the right) a second stage X-ray mirror 12 in a particular direction substantially equal to the direction that the X-ray 10 approaches the first stage X-ray mirror 11.

By referring to Fig. 3 of Koike to teach the claimed invention of "respective optical axes have substantially identical directions," Applicants respectfully submit that the Examiner has misinterpreted these limitations. No two of the four optical axes disclosed in Fig. 3 have substantially identical directions. For example, the direction of the optical axis of the X-ray (indicated by "r") incident on the first stage X-ray mirror (i.e., "PM") is not substantially identical to a direction of the optical axis of the X-ray (indicated by "D") output from the second stage X-ray mirror (i.e., "G"). Therefore, Applicants respectfully submit that Koike fails to identically disclose all the limitations recited in amended claim 50. Thus, Applicants

respectfully request withdrawal of the imposed rejection of claim 50 under 35 U.S.C. § 102 for anticipation based upon Koike.

CLAIMS 1-2, 4, 24-25, 27, 40 AND 42 ARE REJECTED UNDER 35 U.S.C. § 103 FOR

OBVIOUSNESS BASED UPON WATANABE IN VIEW OF CASH, U.S. PATENT NO. 6,049,588

On pages six and seven of the Office Action, the Examiner asserted that one having ordinary skill in the art would have been motivated to modify Watanabe in view of Cash to arrive at the claimed invention. Specifically, the Examiner referred to paragraph [0034] and Fig. 11 of Watanabe, asserting the disclosure of the claimed two mirrors with the second mirror increasing an area of a region illuminable by the X-ray in a direction in which the X-ray is outputted at a second angle. The Examiner then referred to column 5, lines 43-51 of Cash to teach that the mirror material is formed from beryllium for higher reflection efficiency at low reflection angles. This rejection is respectfully traversed.

Initially, Applicants note that independent claims 1, 24, 40, and 42 have been amended to additionally recite that the two X-ray mirrors absorb at least 90% of an X-ray having a frequency range less than 0.3 nm. This limitation was previously presented in originally-presented claim 3. Applicants submit that neither Watanabe nor Cash, either alone or in combination, teach or suggest this particular limitation.

As previously discussed, Applicants further note that the Examiner may have misinterpreted the language previously presented in claims 1, 24, 40, and 42. The X-ray's "first" output angle corresponds to a direction in which the X-ray is collected, and the X-ray's "second"

output angle corresponds to a direction in which the X-ray's illuminable region is increased. For an X-ray output from an X-ray source (e.g., a synchrotron radiation source), there are a horizontal (or first) direction associated with a large output angle and a vertical (or second) angle associated with a small output angle.

For the reasons discussed above, Applicants respectfully submit that one having ordinary skill in the art would not have arrived at the claimed invention based upon the combination of Watanabe and Cash. Thus, Applicants respectfully request withdrawal of the imposed rejection of claims 1-2, 4, 24-25, 27, 40 and 42 under 35 U.S.C. § 103 for obviousness based upon Watanabe in view of Cash.

**CLAIMS 11, 12, 34 AND 35 ARE REJECTED UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS
BASED UPON WATANABE IN VIEW OF CASH, AND FURTHER IN VIEW OF ROSTOKER ET AL., U.S.
PATENT NO. 5,375,974 (HEREINAFTER ROSTOKER)**

On pages seven and eight of the Office Action, the Examiner asserted that the combination of Watanabe, Cash and Rostoker disclose the invention as claimed. This rejection is respectfully traversed.

Claims 11 and 12, and claims 34 and 35, respectively, depend from claims 1 and 24, and Applicants incorporate herein the arguments previously presented in overcoming the rejection of claims 1 and 24 under 35 U.S.C. § 103 for obviousness based upon Watanabe in view of Cash. The Examiner's tertiary reference of Rostoker does not overcome the asserted deficiencies of Watanabe and Cash. Applicants, therefore, respectfully submit that the imposed rejection of claims

11-12 and 34-35 under 35 U.S.C. § 103 for obviousness predicated upon Watanabe in view of Cash and Rostoker is not viable and, hence, solicit withdrawal thereof.

CLAIMS 46-49 ARE REJECTED UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS BASED UPON
WATANABE IN VIEW OF CASH, AND FURTHER IN VIEW OF ITABASHI, JP 11-014800, AND
HASEGAWA, ET AL., U.S. PATENT NO. 6,219,400

Claims 46-49 have been cancelled. Thus, the rejection of claims 46-49 is moot.

Similar to device claims 50-53, new claims 54-57 are method claims that respectively correspond to the tenth through thirteenth embodiments of the invention. Applicants, therefore, submit that claims 54-57 are patentable over the applied prior art for at least the same reasons that claims 50-53 are patentable over the applied prior art.

Applicants have made every effort to present claims which distinguish over the prior art, and it is believed that all claims are in condition for allowance. However, Applicants invite the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. Accordingly, and in view of the foregoing remarks, Applicants hereby respectfully request reconsideration and prompt allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

including extension of time fees, to Deposit Account 500417, and please credit any excess fees to such deposit account.

Respectfully submitted,

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